

THE STING NEMATODE, BELONOLAIMUS LONGICAUDATUS, A  
SERIOUS PEST OF CORN IN FLORIDA

H. L. Rhoades<sup>1</sup>

Introduction: Approximately 250,000 acres of field corn, Zea mays L. (1) and 55,200 acres of sweet corn (2) were produced in Florida in 1984. The sting nematode, Belonolaimus longicaudatus, is widespread in Florida and it causes extensive damage to corn crops in the fine sandy soil of the state.

History: Christie, Brooks, and Perry (4) established the pathogenicity of the sting nematode, B. gracilis, to sweet corn and other crops in Florida in 1952. A later publication by Rau (6) established B. longicaudatus as the sting nematode species responsible for extensive crop injury in Florida. Several researchers (5,7,8) have demonstrated the severe pathogenicity of this nematode to corn.

Symptoms: Sting nematodes feed at or very near root tips with only the stylet penetrating host cells and tissues. Although root injury symptoms vary with age of plant, in general, they consist of greatly reduced root systems (Fig. 1), with short stubby roots exhibiting dark, shrunken lesions along the root axis and at the tip. These lesions may completely girdle the roots. Field symptoms usually consist of severe stunting, tendency to wilt prematurely, leaf chlorosis, and sometimes death. Infested areas consist of spots that vary in size and shape, but the boundary between diseased and healthy plants is usually fairly well defined. Loss in yield can vary from only slight to complete.

Management: Since the host list of the sting nematode is so extensive, crop rotation generally cannot be expected to reduce populations below economically damaging levels for corn production. Most management programs utilize nematicides for reducing populations, and experience has demonstrated that control of this pest is relatively easy when effective chemicals are used under specified conditions of soil moisture, temperature and method of application (Fig. 2). Soil fumigants have been highly effective in reducing sting nematode populations (3), but in recent years, environmental and health hazards have removed most from the market. One soil fumigant, 1,3D, may still be used in designated areas of Florida and is highly effective when applied at low rates in-the-row. More recent investigations (5,7,8) have shown that several nonfumigant granular nematicides, e.g. ethoprop, carbofuran, and terbufos, are highly effective in reducing sting nematode populations when applied in-the-row at planting time.

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<sup>1</sup>Professor (Nematologist), University of Florida, IFAS, Central Florida Research and Education Center, Sanford, FL 32771

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< FIG. 1.

Healthy corn roots on left,  
corn roots injured by  
Belonolaimus longicaudatus  
on right.



< FIG. 2.

Effect of a nematicide on  
growth of field corn in  
Belonolaimus longicaudatus  
infested soil; left  
two rows no nematicide;  
right two rows, terbufos  
applied at 2 lb per acre.

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